CLAIMS

What is claimed is:

1. A process for cleaning substrates comprising:

placing the substrates to be cleaned in a vessel;

adding organic solvent to the vessel;

cleaning the substrates with an organic solvent;

removing a portion of the organic solvent from the vessel;

adding pressurized fluid solvent to the vessel;

removing the pressurized fluid solvent from the vessel; and

removing the substrates from the vessel.

2. The process of claim 1 wherein the organic solvent comprises a cyclic terpene.

3. The process of claim 2 wherein the cyclic terpene:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.0 $(MPa)^{1/2}$ and 17.5 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 0.5 $(MPa)^{1/2}$ and 9.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 10.5 $(MPa)^{1/2}$.

4. The process of claim 3 wherein the cyclic terpene further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

5. The process of claim 4 wherein the cyclic terpene is selected from a group including α-terpene isomers; pine oil; α-pinene isomers; d-limonene; and mixtures thereof.

6. The process of claim 1 wherein the organic solvent comprises a halocarbon.

7. The process of claim 6 wherein the halocarbon:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 1.100;

has a dispersion Hansen solubility parameter of between 10.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 7.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 5.0 $(MPa)^{1/2}$.

8. The process of claim 7 wherein the halocarbon further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

9. The process of claim 8 wherein the halocarbon is selected from a group including chlorinated hydrocarbons; fluorinated hydrocarbons; brominated hydrocarbons; and mixtures thereof.

10. The process of claim 1 wherein the organic solvent comprises a glycol ether.

11. The process of claim 10 wherein the glycol ether:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.0 $(MPa)^{1/2}$ and 19.5 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 7.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 8.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$.

12. The process of claim 11 wherein the glycol ether further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

13. The process of claim 12 wherein the glycol ether is selected from a group including monoethylene glycol ether; diethylene glycol ether; triethylene glycol ether; monopropylene glycol ether; dipropylene glycol ether; tripropylene glycol ether; and mixtures thereof.

14. The process of claim 1 wherein the organic solvent comprises a polyol.

15. The process of claim 14 wherein the polyol:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.920;

has a dispersion Hansen solubility parameter of between 14.0 $(MPa)^{1/2}$ and 18.2 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 4.5 $(MPa)^{1/2}$ and 20.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 15.0 $(MPa)^{1/2}$ and 30.0 $(MPa)^{1/2}$.

16. The process of claim 15 wherein the polyol further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

17. The process of claim 16 wherein the polyol contains two or more hydroxyl radicals.

18. The process of claim 1 wherein the organic solvent comprises an ether.

19. The process of claim 18 wherein the ether:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 14.5 $(MPa)^{1/2}$ and 20.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 1.5 $(MPa)^{1/2}$ and 6.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 5.0 $(MPa)^{1/2}$ and 10.0 $(MPa)^{1/2}$.

20. The process of claim 19 wherein the ether further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

21. The process of claim 20 wherein the ether contains no free hydroxyl radicals.

22. The process of claim 1 wherein the organic solvent comprises an ester of glycol ethers.

23. The process of claim 22 wherein the ester of glycol ethers:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 15.0 $(MPa)^{1/2}$ and 20.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 10.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 8.0 $(MPa)^{1/2}$ and 16.0 $(MPa)^{1/2}$.

24. The process of claim 23 wherein the ester of glycol ethers further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

25. The process of claim 1 wherein the organic solvent comprises an ester of monobasic carboxylic acids.

26. The process of claim 25 wherein the ester of monobasic carboxylic acids:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 2.0 $(MPa)^{1/2}$ and 7.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 1.5 $(MPa)^{1/2}$ and 6.5 $(MPa)^{1/2}$.

27. The process of claim 26 wherein the ester of monobasic carboxylic acids further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

28. The process of claim 1 wherein the organic solvent comprises a fatty alcohol.

29. The process of claim 28 wherein the fatty alcohol:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.3 $(MPa)^{1/2}$ and 18.4 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.1 $(MPa)^{1/2}$ and 18.8 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 8.4 $(MPa)^{1/2}$ and 22.3 $(MPa)^{1/2}$.

30. The process of claim 29 wherein the fatty alcohol further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

31. The process of claim 30 wherein, in the fatty alcohol, the carbon chain adjacent to the hydroxyl group contains at least five carbon atoms.

32. The process of claim 1 wherein the organic solvent comprises a short chain alcohol.

33. The process of claim 32 wherein the short chain alcohol:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.5 $(MPa)^{1/2}$ and 18.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 9.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 9.0 $(MPa)^{1/2}$ and 16.5 $(MPa)^{1/2}$.

34. The process of claim 33 wherein the short chain alcohol further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

35. The process of claim 34 wherein, in the short chain alcohol, the carbon chain adjacent to the hydroxyl group contains no more than four carbon atoms.

36. The process of claim 1 wherein the organic solvent comprises a siloxane.

37. The process of claim 36 wherein the siloxane:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.900;

has a dispersion Hansen solubility parameter of between 14.0 $(MPa)^{1/2}$ and 18.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 4.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 4.5 $(MPa)^{1/2}$.

38. The process of claim 37 wherein the siloxane:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

39. The process of claim 1 wherein the organic solvent comprises a hydrofluoroether.

40. The process of claim 39 wherein the hydrofluoroether:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 1.500;

has a dispersion Hansen solubility parameter of between 12.0 $(MPa)^{1/2}$ and 18.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 4.0 $(MPa)^{1/2}$ and 10.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 1.5 $(MPa)^{1/2}$ and 9.0 $(MPa)^{1/2}$.

41. The process of claim 40 wherein the hydrofluoroether:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

42. The process of claim 1 wherein the organic solvent comprises an aliphatic hydrocarbon.

43. The process of claim 42 wherein the aliphatic hydrocarbon:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.700;

has a dispersion Hansen solubility parameter of between 14.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 2.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 2.0 $(MPa)^{1/2}$.

44. The process of claim 43 wherein the aliphatic hydrocarbon:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

45. The process of claim 1 wherein the organic solvent comprises an ester of dibasic carboxylic acids.

46. The process of claim 45 wherein the ester of dibasic carboxylic acids:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.900;

has a dispersion Hansen solubility parameter of between 13.5 $(MPa)^{1/2}$ and 18.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 4.0 $(MPa)^{1/2}$ and 6.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 4.0 $(MPa)^{1/2}$ and 11.0 $(MPa)^{1/2}$.

47. The process of claim 46 wherein the ester of dibasic carboxylic acids:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

48. The process of claim 1 wherein the organic solvent comprises a ketone.

49. The process of claim 48 wherein the ketone:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.0 $(MPa)^{1/2}$ and 19.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 8.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 11.0 $(MPa)^{1/2}$.

50. The process of claim 49 wherein the ketone:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

51. The process of claim 1 wherein the organic solvent comprises an aprotic solvent that contains no dissociable hydrogens.

52. The process of claim 51 wherein the aprotic solvent:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.900;

has a dispersion Hansen solubility parameter of between 15.0 $(MPa)^{1/2}$ and 21.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 6.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 4.0 $(MPa)^{1/2}$ and 13.0 $(MPa)^{1/2}$.

53. The process of claim 52 wherein the aprotic solvent:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

54. The process of claim 1 wherein the pressurized fluid solvent is densified carbon dioxide.

55. A system for cleaning substrates comprising:

a cleaning vessel adapted to hold contaminated substrates and organic solvent;

an organic solvent tank operatively connected to the cleaning vessel;

a pump for pumping organic solvent from the organic solvent tank to the cleaning vessel;

a drying vessel adapted to hold cleaned substrates and pressurized fluid solvent;

a pressurized fluid solvent tank operatively connected to the drying vessel; and

a pump for pumping pressurized fluid solvent from the pressurized fluid solvent tank to the drying vessel.

56. The system of claim 55 wherein the organic solvent comprises a cyclic terpene.

57. The system of claim 56 wherein the cyclic terpene:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.0 $(MPa)^{1/2}$ and 17.5 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 0.5 $(MPa)^{1/2}$ and 9.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 10.5 $(MPa)^{1/2}$.

58. The system of claim 57 wherein the cyclic terpene further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

59. The system of claim 58 wherein the cyclic terpene is selected from a group including α-terpene isomers; pine oil; α-pinene isomers; d-limonene; and mixtures thereof.

60. The system of claim 55 wherein the organic solvent comprises a halocarbon.

61. The system of claim 60 wherein the halocarbon:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 1.100;

has a dispersion Hansen solubility parameter of between 10.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 7.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 5.0 $(MPa)^{1/2}$.

62. The system of claim 61 wherein the halocarbon further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

63. The system of claim 62 wherein the halocarbon is selected from a group including chlorinated hydrocarbons; fluorinated hydrocarbons; brominated hydrocarbons; and mixtures thereof.

64. The system of claim 55 wherein the organic solvent comprises a glycol ether.

65. The system of claim 64 wherein the glycol ether:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.0 $(MPa)^{1/2}$ and 19.5 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 7.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 8.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$.

66. The system of claim 65 wherein the glycol ether further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

67. The system of claim 66 wherein the glycol ether is selected from a group including monoethylene glycol ether; diethylene glycol ether; triethylene glycol ether; monopropylene glycol ether; dipropylene glycol ether; tripropylene glycol ether; and mixtures thereof.

68. The system of claim 55 wherein the organic solvent comprises a polyol.

69. The system of claim 68 wherein the polyol:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.920;

has a dispersion Hansen solubility parameter of between 14.0 $(MPa)^{1/2}$ and 18.2 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 4.5 $(MPa)^{1/2}$ and 20.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 15.0 $(MPa)^{1/2}$ and 30.0 $(MPa)^{1/2}$.

70. The system of claim 69 wherein the polyol further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

71. The system of claim 70 wherein the polyol contains two or more hydroxyl radicals.

72. The system of claim 55 wherein the organic solvent comprises an ether.

73. The system of claim 72 wherein the ether:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 14.5 $(MPa)^{1/2}$ and 20.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 1.5 $(MPa)^{1/2}$ and 6.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 5.0 $(MPa)^{1/2}$ and 10.0 $(MPa)^{1/2}$.

74. The system of claim 73 wherein the ether further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

75. The system of claim 74 wherein the ether contains no free hydroxyl radicals.

76. The system of claim 55 wherein the organic solvent comprises an ester of glycol ethers.

77. The system of claim 76 wherein the ester of glycol ethers:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 15.0 $(MPa)^{1/2}$ and 20.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 10.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 8.0 $(MPa)^{1/2}$ and 16.0 $(MPa)^{1/2}$.

78. The system of claim 77 wherein the ester of glycol ethers further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

79. The system of claim 55 wherein the organic solvent comprises an ester of monobasic carboxylic acids.

80. The system of claim 79 wherein the ester of monobasic carboxylic acids:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 2.0 $(MPa)^{1/2}$ and 7.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 1.5 $(MPa)^{1/2}$ and 6.5 $(MPa)^{1/2}$.

81. The system of claim 80 wherein the ester of monobasic carboxylic acids further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

82. The system of claim 55 wherein the organic solvent comprises a fatty alcohol.

83. The system of claim 82 wherein the fatty alcohol:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.3 $(MPa)^{1/2}$ and 18.4 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.1 $(MPa)^{1/2}$ and 18.8 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 8.4 $(MPa)^{1/2}$ and 22.3 $(MPa)^{1/2}$.

84. The system of claim 83 wherein the fatty alcohol further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

85. The system of claim 84 wherein, in the fatty alcohol, the carbon chain adjacent to the hydroxyl group contains at least five carbon atoms.

86. The system of claim 55 wherein the organic solvent comprises a short chain alcohol.

87. The system of claim 86 wherein the short chain alcohol:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.5 $(MPa)^{1/2}$ and 18.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 9.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 9.0 $(MPa)^{1/2}$ and 16.5 $(MPa)^{1/2}$.

88. The system of claim 87 wherein the short chain alcohol further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

89. The system of claim 88 wherein, in the short chain alcohol, the carbon chain adjacent to the hydroxyl group contains no more than four carbon atoms.

90. The system of claim 55 wherein the organic solvent comprises a siloxane.

91. The system of claim 90 wherein the siloxane:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.900;

has a dispersion Hansen solubility parameter of between 14.0 $(MPa)^{1/2}$ and 18.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 4.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 4.5 $(MPa)^{1/2}$.

92. The system of claim 91 wherein the siloxane:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

93. The system of claim 55 wherein the organic solvent comprises a hydrofluoroether.

94. The system of claim 93 wherein the hydrofluoroether:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 1.500;

has a dispersion Hansen solubility parameter of between 12.0 $(MPa)^{1/2}$ and 18.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 4.0 $(MPa)^{1/2}$ and 10.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 1.5 $(MPa)^{1/2}$ and 9.0 $(MPa)^{1/2}$.

95. The system of claim 94 wherein the hydrofluoroether:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

96. The system of claim 55 wherein the organic solvent comprises an aliphatic hydrocarbon.

97. The system of claim 96 wherein the aliphatic hydrocarbon:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.700;

has a dispersion Hansen solubility parameter of between 14.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 2.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 0.0 $(MPa)^{1/2}$ and 2.0 $(MPa)^{1/2}$.

98. The system of claim 97 wherein the aliphatic hydrocarbon:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

99. The system of claim 55 wherein the organic solvent comprises an ester of dibasic carboxylic acids.

100. The system of claim 99 wherein the ester of dibasic carboxylic acids:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.900;

has a dispersion Hansen solubility parameter of between 13.5 $(MPa)^{1/2}$ and 18.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 4.0 $(MPa)^{1/2}$ and 6.5 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 4.0 $(MPa)^{1/2}$ and 11.0 $(MPa)^{1/2}$.

101. The system of claim 100 wherein the ester of dibasic carboxylic acids:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

102. The system of claim 55 wherein the organic solvent comprises a ketone.

103. The system of claim 102 wherein the ketone:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between 13.0 $(MPa)^{1/2}$ and 19.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 8.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 3.0 $(MPa)^{1/2}$ and 11.0 $(MPa)^{1/2}$.

104. The system of claim 103 wherein the ketone:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

105. The system of claim 55 wherein the organic solvent comprises an aprotic solvent that contains no dissociable hydrogens.

106. The system of claim 105 wherein the aprotic solvent:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.900;

has a dispersion Hansen solubility parameter of between 15.0 $(MPa)^{1/2}$ and 21.0 $(MPa)^{1/2}$;

has a polar Hansen solubility parameter of between 6.0 $(MPa)^{1/2}$ and 17.0 $(MPa)^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between 4.0 $(MPa)^{1/2}$ and 13.0 $(MPa)^{1/2}$.

107. The system of claim 106 wherein the aprotic solvent:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

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108. The system of claim 55 wherein the pressurized fluid solvent is densified carbon dioxide.

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